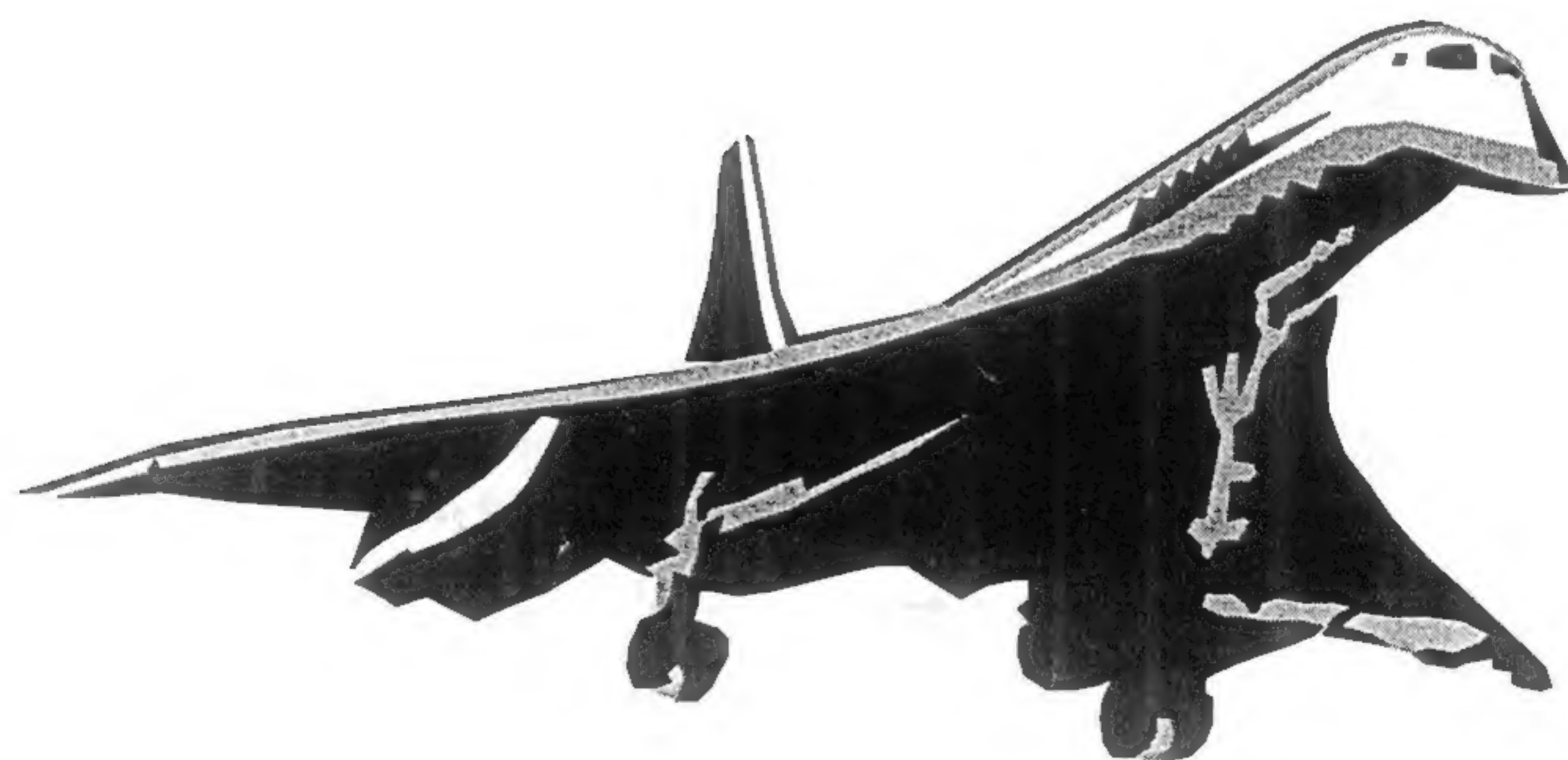


# **Scott Aviation**

**Family Fest**

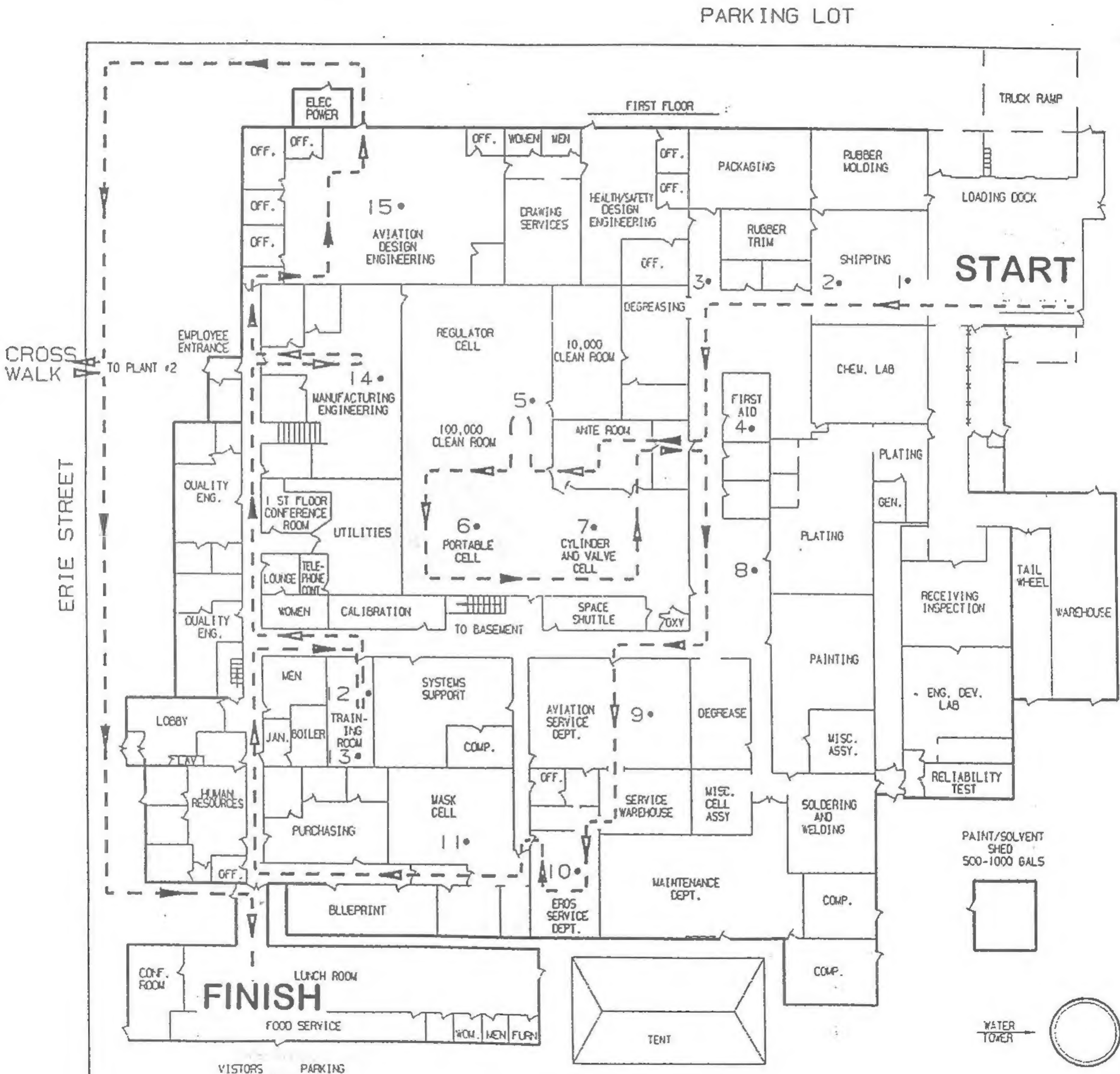
**October 11, 1997**



**Tour  
Information**

## PLANT 1 • DISPLAY AREAS

- |   |   |  |
|---|---|--|
| 1. SHIPPING<br>4. FIRST AID<br>7. CYL/VALVE CELL<br>10. EROS SERVICE<br>13. SCOTT PRODUCT DISPLAY | 2. MOLD ROOM<br>5. REGULATOR CELL<br>8. PLATE SHOP<br>11. MASK CELL<br>14. MFG. ENGINEERING | 3. PACKAGING<br>6. PORTABLE CELL<br>9. AVIATION SERVICES<br>12. SPACE SHUTTLE REGULATOR<br>15. ENGINEERING CAD/CAM |
|---|---|--|





# Plant One Tour Information

## START

You are about to embark on the Scott Aviation Family Fest Tour. I hope it is informative and educational. The hope is that you will learn a little more about Scott and the business we are in. Just follow the arrows and signs or ask any volunteer for directions. Please feel free to skip a display area and come back to it if it appears crowded.

Parents please remember that this is a manufacturing facility and keep your eye on your children. Please no food, drink or picture taking in production areas.

## 1) SHIPPING

This area is responsible for receiving and shipping of over 3000 packages a month. The cell is made up of 13 material handlers who are trained to handle all operations within the cell. This includes everything from receiving material to delivery of mail to the Post Office. Each member is trained in DOT classification for shipping.

## 2) MOLD ROOM

The Mold Room uses compression and heat to form rubber gaskets and seats for Scott products. This cell molds over 200 part number components. This includes bonding of silicones and rubbers to Scott machined parts. In most cases the team members must mix and mill their own material. This cell can have as many as 15 people working two shifts to support customer demands.

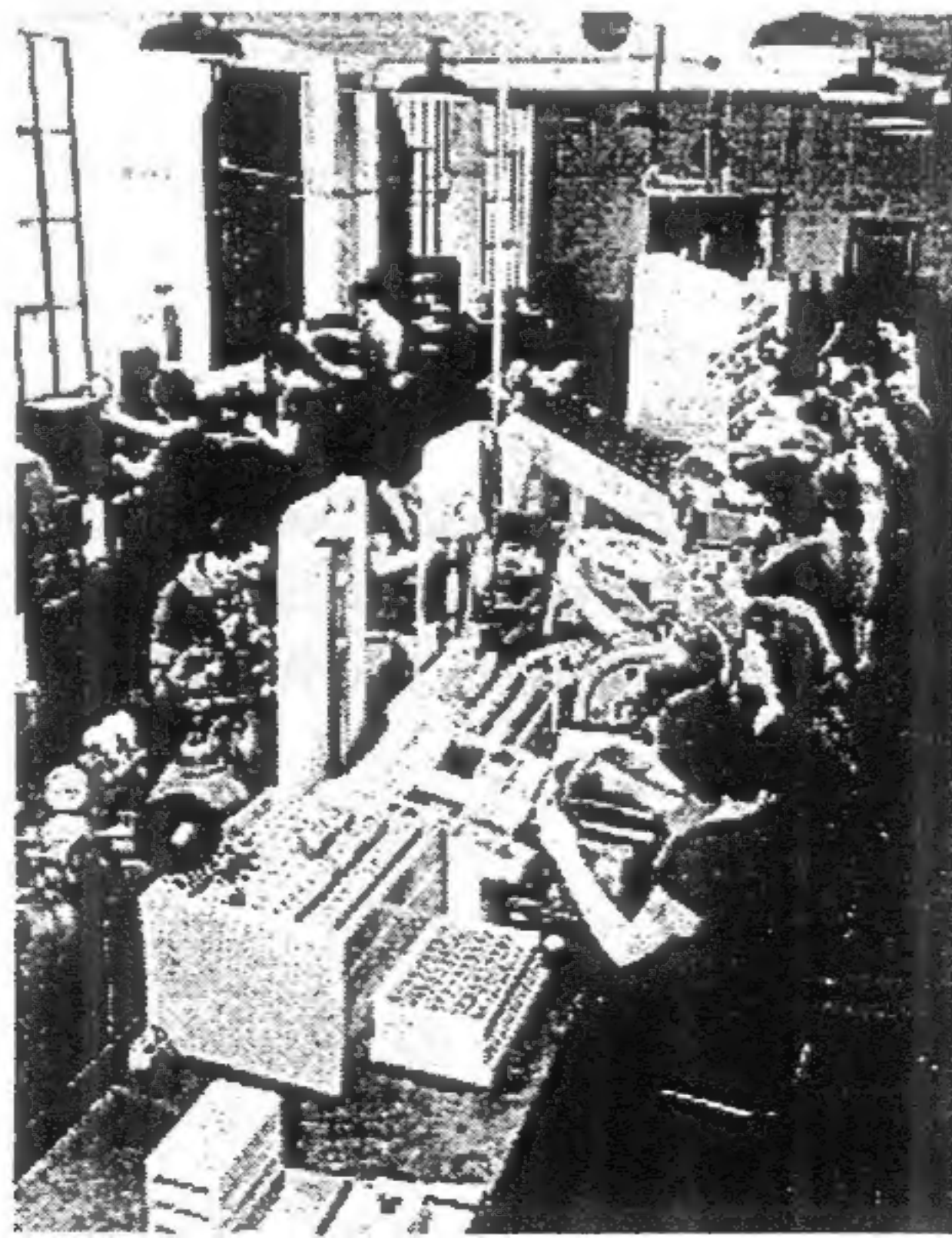
## 3) PACKAGING DEPARTMENT

The Packaging Department is actually part of the Material-Handling Cell. The purpose of this area is to package complete Scott products for shipment. Most people associate this to mailing a package at the Post Office. This department is underestimated as to the complexity of work required. Each team member must be aware of customer requirements, DOT labeling, and special paperwork needed.

## 4) FIRST AID

Scott has a well-trained first responder's team. Each member volunteers his or her services and is Scott's first response in case of an emergency. Team members must complete regular training classes and pass certification tests.

Scott Aviation Assembly  
of the A-13 Regulator in  
1942





## **CLEAN ROOM**

Scott has a Class 10,000 and 100,000 clean room that limits particulates to less than .5 microns per cubic foot of air. To give you an idea of how small a micron is, you could put 200 .5 micron particles on the head of a pin. The air inside the room is filtered and is actually replaced every 6 minutes.

The question always asked by customers is, why does Scott Aviation need a Clean Room? The majority of Scott products are used with high-pressure oxygen. The typical system is charged to 1850 psi. Oxygen itself will not burn, but what it does to other materials is a serious problem. Contamination of any combustible material could result in a fire or explosion. That's why assembly cell members are so cautious about any type of contamination. Lives depend on it.

### **5) REGULATOR ASSEMBLY CELL**

The Regulator Cell is responsible for building 7 different products. This includes regulators that control flow and reduce pressure. The regulators are mounted in the aircraft and are controlled manually or by passenger cabin pressure. The Regulator Cell also builds a mask-mounted regulator worn by the flight crew. The pilot for different situations can set this regulator for oxygen levels.

### **6) PORTABLE CELL**

Unlike the other cells within the Clean Room, the members of the Portable Cell all work on one type of product. When completely certified, any team member could build a portable oxygen system from start to finish.

The portable oxygen system is used by the flight crew to supplement or replace the fixed oxygen system in the passenger compartments. It is ideal as a walk-around, self-contained lightweight system. In case of emergency, this gives the flight crew the ability to move about in the aircraft or to give first aid to passengers. Most aircraft have Scott portable oxygen systems located in the overhead baggage compartments. The next time you are in an airplane, take a look.

### **7) CYLINDER AND VALVE CELL**

The Cylinder and Valve Cell builds regulators and valves that are installed into high-pressure cylinders. When charged, these cylinders have over 1800 PSI of oxygen stored in them. These products are installed in the luggage compartments of most commercial aircraft. The purpose of this product is to provide emergency oxygen to the flight crew and on some aircraft passengers also. This system is designed for long term reliability and minimum maintenance.

### **8) PLATE SHOP**

The primary function of Scott's Plate Shop is metal coating for preservation and prevention of contamination. This is accomplished with over 200 different processes, from painting to alodyne. The plate shop is a two-shift operation and has a total of 24 team members.



## **9 & 10) SERVICE DEPARTMENT**

The Scott Service Department is operated 24 hours a day, 7 days a week. This is to handle the rapid response demanded by our customers. In the airline business a key term that all Scott employees learn is "AOG" which means "aircraft on the ground". To our customers this is critical. If the airplane is grounded, it costs the airline thousands of dollars per day.

The Service Department is not only controlled by Scott procedures but must follow FAA rules and regulations such as regular drug and alcohol testing of team members.

The Service Department repairs Scott products as well as EROS products. EROS is a European company that makes flight crew masks known for the "Comfort Fit Harness". Scott is the only authorized sales and service station for EROS products in the United States. Scott ships over \$1,500,000 of EROS products a month.

## **11) MASK CELL**

If you have traveled on a commercial airline, you have seen the Flight Attendants demonstrate products produced here in Lancaster and our Monroe, NC facility. The drop down mask is the key to emergency oxygen for passengers. The Mask Cell produces other flight crew masks that include many different options, one of which is a microphone for communications.

## **12) SPACE SHUTTLE REGULATOR**

Many of you may not be aware that Scott regulators go into space on a regular basis. Scott is a partner with a company that makes the power system for the Space Shuttles. The regulator is critical in supplying power to the life support systems. Although Scott is not now producing new regulators, it is servicing units that have been to outer space at a cost of over \$40,000 each.

## **13) SCOTT PRODUCT DISPLAY**

If you are not familiar with all of the products sold by the Lancaster and Monroe facilities, this is a great opportunity to see them up close. Both Aviation and Health / Safety products are on display in the training room. The Sales and Marketing Group will be happy to answer any questions you may have about a product and its use.

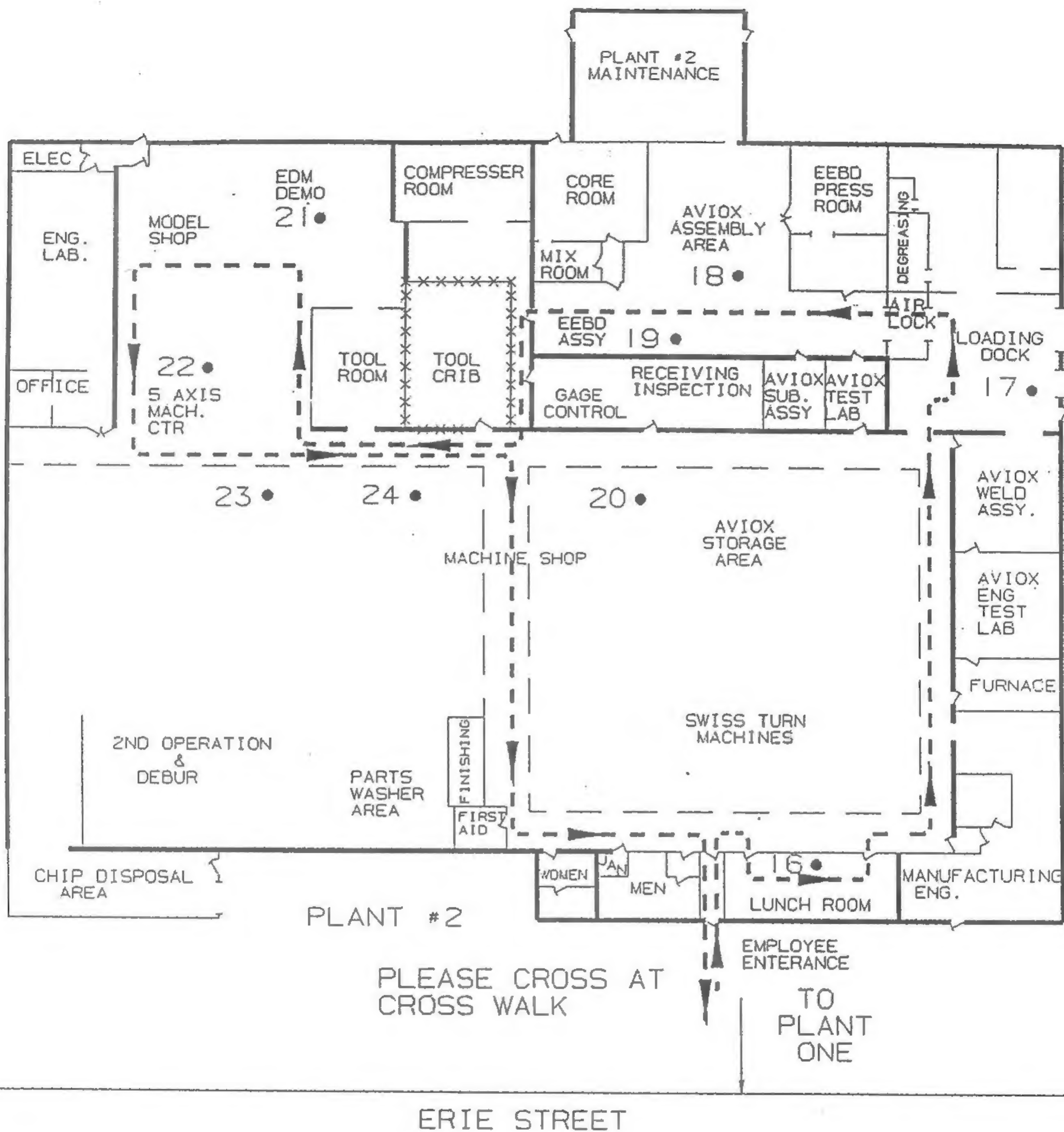
## **14) MANUFACTURING ENGINEERING**

The Manufacturing Engineering Department is responsible for assembly methods, mold room processes and just about everything else that happens in the assembly and feeder cells in Plant 1. One of the key responsibilities of this department is operation sheet development. A recent enhancement to the work instructions is the ability to put pictures into the operation sheets with a digital camera. After all, one picture is worth a thousand words.

## **15) PRODUCT LINE MANAGEMENT/ENGINEERING**

This department is the future of Scott Aviation. This group is hard at work designing new products and improvements to Scott existing products. This department is also responsible for pricing, forecasting, proposal preparation, customer contract negotiation and direct customer contact on technical issues.





RECOMMENDED (OPTIONAL)  
TOUR ROUTE

**PLANT 2 • DISPLAY AREAS**

16. TRADE SHOW BOOTH  
19. EEBO CORE & FINAL UNIT  
22. MACHINE CENTER

17. AVIOX WELD  
20. MACHINE SHOP PARTS  
23. METROLOGY DEMO

18. AVIOX FIXED GEN'TR  
21. WIRE EDM MACHINE  
24. SWISS TURN MACHINE



# **Plant Two Tour Information**

## **16) SCOTT PRODUCT SHOW BOOTH**

This enormous display is only months old and has already been used 3 times. Its last stop was Dallas, Texas for the National Business Aviation Association weeklong show. This booth is 8 feet high and 30 feet long and displays not only pictures of Scott products but also actual working models. It is shipped in 6 large boxes and takes 2 – 4 hours to assemble and set up. This booth is an essential tool to create new business for Scott Aviation.

## **17 - 19) AVIOX**

The Aviox product line is also used to provide emergency oxygen for airline passengers. The primary difference from the Plant 1 product is that oxygen is generated by chemical reaction and not high-pressure gas. The oxygen generator is designed for a one-time emergency use versus the reusable products made in Plant 1.

The Aviox team also produces generators that are used in portable units such as a PBE (Protective Breathing Equipment). This product features a hood, which encloses the entire head. When properly worn, the PBE hood will accommodate beards, long hair, and glasses. Scott's largest customer for these units is the U.S. Navy.

## **20) MACHINE SHOP PARTS**

The parts display gives an overall view of the capability of the Machine Shop. We machine approximately 1,000,000 precision parts a year. Aluminum, brass and stainless steel bars are our common raw materials.

## **21) WIRE EDM MACHINE**

This display shows examples of submerged electrode and wire electro-discharge machining. In the submerged type, an electrode is made in a male or female form, submerged in dielectric oil and submitted to a pulsating direct current voltage. The material under the electrode is eroded away by a spark that occurs between the electrode and the workpiece. Our advantage of this type of machining process is that material hardness does not matter to the process.

In the wire process electro-discharge, the traveling wire, made of brass, becomes the electrode. By programming with a computer and communicating by modem with a numerical file, very elaborate shapes up to four axis may be cut.

## **22) 5 AXIS MACHINING CENTER**

The MAHO 700-S Machining Center is a machine tool capable of machining parts utilizing both horizontal and vertical spindles with five axis of motion. The five axis of motion is comprised of the traditional X, Y, Z axis of motion, with the machined part or component able to be rotated in two more circular motions known as the A & B axis. The advantage of this type of machining, is that it allows very complex surfaces to be cut, and reduces the need for complex part holding devices known as "fixturing".



## **23) METROLOGY**

Two sophisticated measuring tools are displayed at station 23. A 30" optical comparator features a 30" screen and can enlarge the projected or reflected image of a part up to 50 times. The parts can then be measured with extreme accuracy using a digital display.

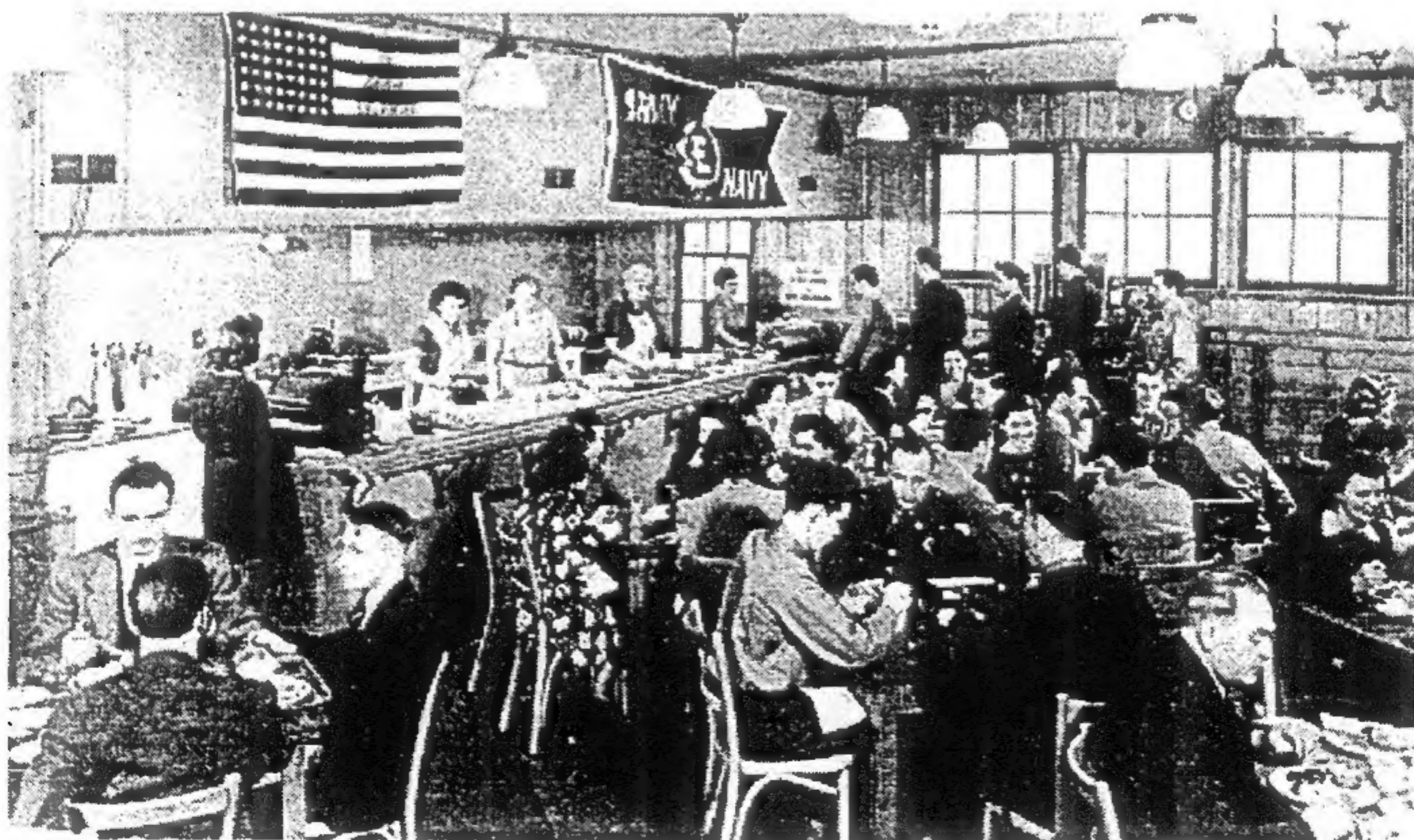
The second measuring tool on display is the coordinate measuring machine. This gaging system is computer controlled and can measure five sides of a part in 3 axis at varying increments of degrees of arc. The touch trigger probe contacts the surface of the part and records the reading. It then makes trigonometric calculation to determine size and location of a feature. Inspection time has been reduced by 80% in most cases.

## **24) SWISS-TURN MACHINE**

The Swiss-turn machine is a multi-axis lathe. Bars are fed into the machine through a bar feed attachment. After machining one end and the sides of a part, the part is cut off, then picked up by the sub chuck and machined on the cut off side. We have 15 Swiss-turn style machines at Scott Aviation in Lancaster.

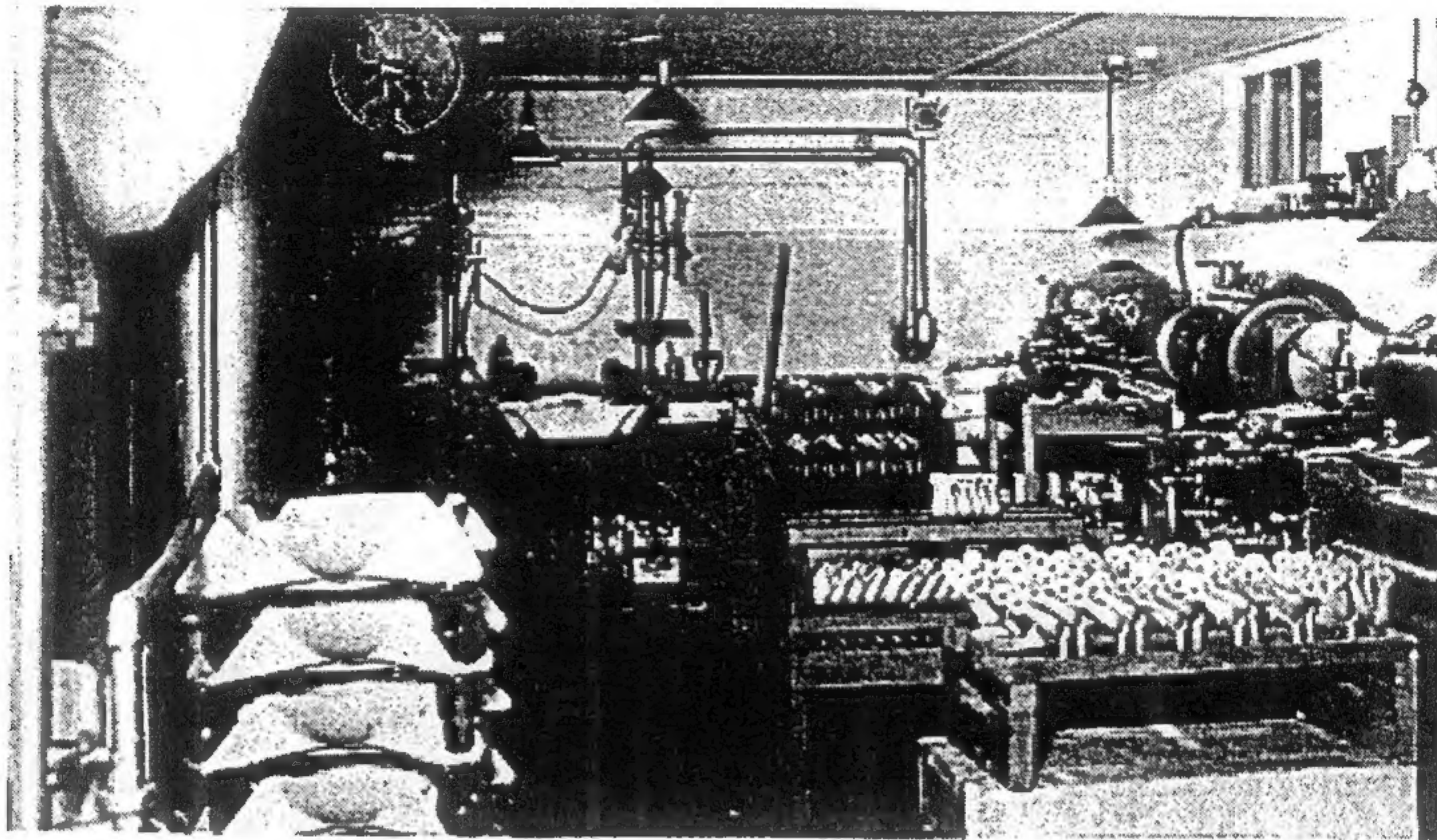
## **Lunch Room (End)**

Well, if you made it this far you successfully navigated the Scott Aviation Family Fest Tour. I hope you found your tour informative and enjoyable. Please feel free to go back to any off the areas if your have a question or just want to see it one more time. Please do not take any food, drink or balloons into the production areas.

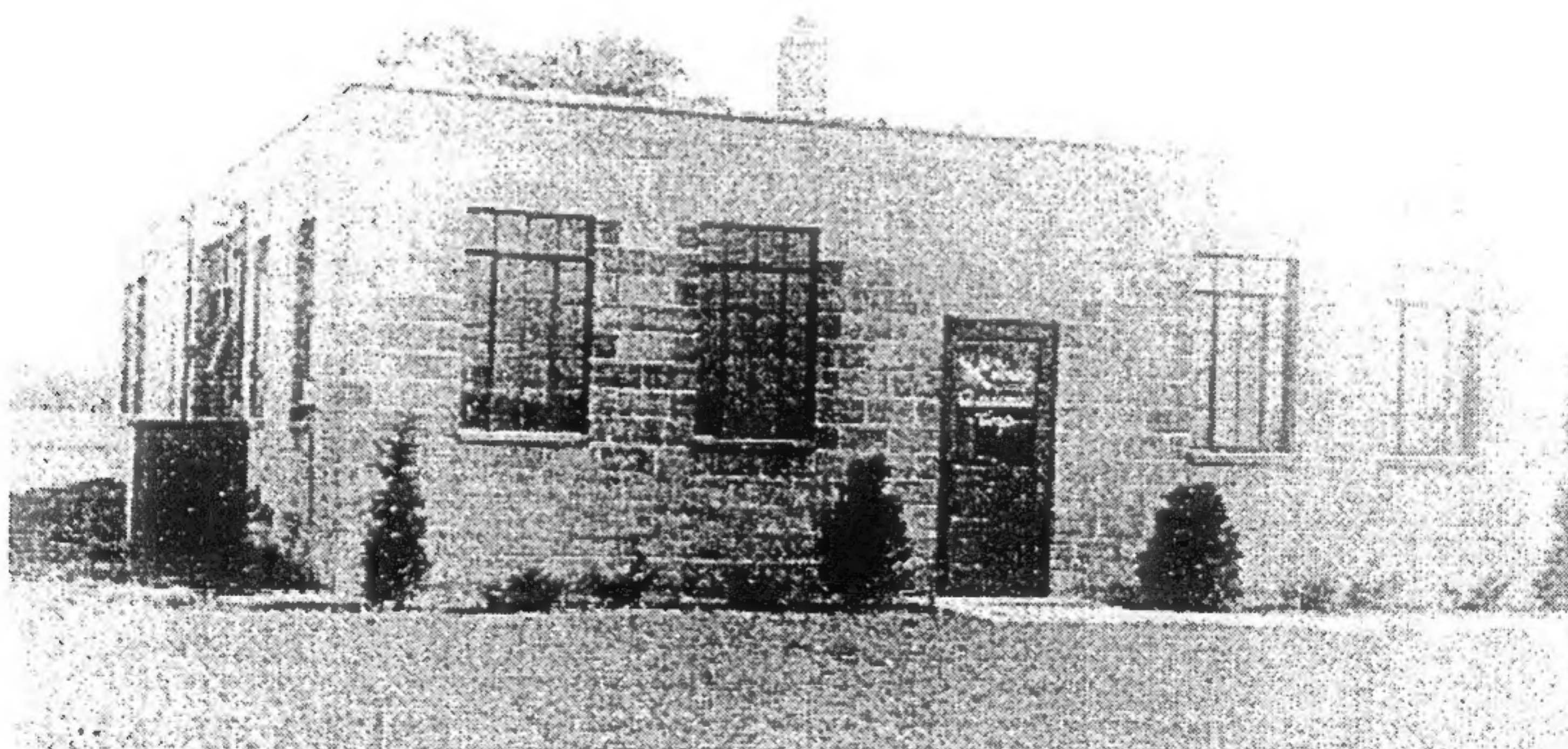




**A Busy Corner in Earle Scott's Cellar is where it all began in 1932**



**First Scott Aviation Plant in December 1940**





## Scott Aviation in the Spring of 1943

